

Mahalanobis Distance

What two complications does the Mahalanobis distance compensate for?

1) The components of the vector might have different ranges (*e.g.* component 1 has a range of -1000 to +1000, whereas component 2 might have the range -0.1 to +0.1.) 2) The components of the vector might be correlated, and the Mahalanobis distance de-correlates the components before computing the distance (*e.g.* if the first and second components of the vector were always identical, then this would bias the distance. The MD de-correlates them so they only count for 1 difference).